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PATENT

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re Application of:	)	
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Filed: January 15, 2002	)	Confirmation No.: 7842
For: MULTI-LEVEL STACKING CONTAINER	)	November 14, 2005

**MAIL STOP AF**

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**SUBMISSION OF PRIORITY DOCUMENT**

Sir:


To perfect their claim to priority in the above-identified application, Applicants submit herewith a certified copy of the following priority document:

CA 2,331,202 filed on January 15, 2001

Applicants' attorney may be reached in our Washington, D.C. office by telephone at (202) 625-3500. All correspondence should continue to be directed to our address given below.

Respectfully submitted,

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Specification and Drawings, as originally filed, with Application for Patent Serial No:  
**2,331,202**, on January 15, 2001, by **NORSEMAN PLASTICS LIMITED**, assignee of  
Narayan Raghunathan and Don M.U. Ogden, for "Multi-Level Stacking Container".

*Gracy Raush*  
Agent certificateur/Certifying Officer

November 7, 2005  
Date

Canada

(CIPO 68)  
31-03-04

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ABSTRACT OF THE DISCLOSURE

A multi-level stacking container is disclosed. The container comprises: a base; a pair of opposed sidewalls extending from the base; and a pair of moveable support bars operatively coupled to and extending across the pair of opposed sidewalls, the pair of support bars being moveable between at least three positions such that the container is stackable in at least three positions with a second, like-container.

## MULTI-LEVEL STACKING CONTAINER

### FIELD OF THE INVENTION

This invention relates to stackable containers and more particularly, to a  
5 multi-level stacking container that can be stacked in at least three positions.

### BACKGROUND OF THE INVENTION

Stacking and nesting containers are commonly used for transportation and  
storage of food goods such as produce, baked goods. Such containers generally  
10 have a rectangular base with upstanding sidewalls extending from the base.  
Some stacking and nesting containers include support bars that are pivotably  
mounted at each end and extend across two opposed sidewalls. These support  
bars can be pivoted between a stacking support position and a nesting position.

When goods are placed in the container, the support bars are placed in the  
15 stacking support position. A second container can then be placed on the first  
container and is supported by the support bars, thereby protecting the contained  
goods from being crushed by the second container.

When the container is empty, the support bars are placed in the nesting  
position and a second container can be nested such that it is received in the first  
20 container, thereby reducing the stacking space required.

These containers suffer from the disadvantage of having only two stacking  
positions. A second container can be stacked on a first container in a stacking  
position to protect goods contained in the first container, or in a nested position  
when the first container is empty. These containers do not have any intermediate  
25 stacking position to save stacking space when smaller or fewer items are placed  
in the container.

Accordingly, it is an object of the present invention to provide a multi-  
level stacking container that can be stacked in more than two positions depending  
on the goods contained to save stacking space in transportation or storage.

## SUMMARY OF THE INVENTION

A multi-level stacking container is provided. The container has a base and a pair of opposed sidewalls extending from the base. A pair of support bars are operatively coupled to and extend across the pair of opposed sidewalls. The support bars are moveable between at least three positions such that the container is stackable in at least three positions with a second like container.

## BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is an isometric view of a multi-level stacking container according to the invention;

Fig. 2 is an exploded partial isometric view of the multi-level stacking container of Fig. 1 showing a support bar removed from a floating pivot in a sidewall;

Fig. 3 is a partial isometric view of the multi-level stacking container of Fig. 1 showing the support bar in a second stacking position in full outline, a first stacking position in ghost outline and a nesting position, also in ghost outline;

Fig. 4 is a partial side view of the container of Fig. 1 showing the support bar in the nesting position and a partial sectional side view of the container of Fig. 1 in a nested position with a like-container.

Fig. 5 is a partial side view of the container of Fig. 1 showing the support bar in the first stacking position and a partial sectional side view of the container in a first stacked position with a like-container; and

Fig. 6 is a partial side view of the container of Fig. 1 showing the support bar in the second stacking position and a partial sectional side view of the container in a second stacked position with a like-container.

## DESCRIPTION OF PREFERRED EMBODIMENTS

Reference is first made to Fig. 1 to describe a preferred embodiment of a multi-level stacking container indicated generally by the numeral 10. The container 10 has a base 12 and two pairs of opposed sidewalls 14, 16, 18, 20 projecting therefrom. A pair of support bars 22, 24 are operatively coupled to and extend across a pair of the opposed sidewalls 14, 16. These support bars 22, 24

are moveable between at least three positions such that the container is stackable in at least three positions with a second like-container.

The multi-level stacking container 10 will now be described in more detail. As seen in Fig. 1, the base 12 is substantially rectangular and has a plurality of apertures 26 to reduce the container weight and allow ambient circulation. Each of the sidewalls 14, 16, 18, 20 are integral with and project from the sides of the base 12 at an obtuse angle. This permits nesting of the container 10 with a similar, second container. In this embodiment, a first pair of the opposed sidewalls 14, 16 are longer than a second pair of the opposed sidewalls 18, 20. Similar to the base, each of the sidewalls 14, 16, 18, 20 have a plurality of apertures 27.

The base 12 and the sidewalls 14, 16, 18, 20 are injection moulded high density polyethylene and the support bars 22, 24 are metal such as stainless steel.

Referring now to one of the first pair of opposed sidewalls 14, 16, the sidewall 14 is substantially rectangular, with first and second ends 28, 30, respectively, and a pair of edges, a basal edge 32, proximal the base 12 and an opposed rim 34. As shown in Fig. 1, the basal edge 32 has a first outer recess 36, proximal the end 28 and a first inner recess 38, laterally spaced therefrom. Similarly, there is a second outer recess 40 to proximal the end 30 and a second inner recess 42 on the basal edge 32. These recesses 36, 38, 40, 42 are for receiving the support bars 22, 24 of a second similar container when stacked thereon. This will be described further below.

Referring now to Figs. 1 and 2, it can be seen that the sidewall 14 has a number of reinforcing ribs 44 that define the rim 34 and a lip 46. Clearly the lip 46 extends substantially parallel to the rim 34 along the length of the sidewall 14. This lip 34 abuts the rim of a second, similar container when the container 10 is nested therein.

There is a first depression 48 at the end 28 of the rim 34, and two laterally spaced grooves, a first outer groove 50 and a first inner groove 52. Similarly, the rim 34 also has a second depression 54 at the end 30, and laterally spaced second outer and second inner grooves 56, 58, respectively. Clearly, the outer grooves

50, 56 are shallow, while the inner grooves 52, 58 extend deeper into the sidewall 14.

A first floating pivot 60 is located on the sidewall 14, between the rim 34 and the lip 46, proximal the first depression 48 and first outer and inner grooves 50, 52, respectively. The first floating pivot 60 is for receiving one of the support bars 22 while a similar second floating pivot 62 on the same sidewall 14 receives the other of the support bars 24.

While the above description is directed to the sidewall 14, it will be understood that the sidewall 16 has a similar structure and therefore will not be further described herein.

Referring now to the second pair of opposed sidewalls 18, 20. Each sidewall 18, 20 is substantially rectangular and includes a basal edge 64, proximal the base 12 and an opposed rim 66 defined by a rib 68.

Referring to Fig. 2, a partial isometric view of the support bar 22 removed from the first floating pivot 60 is shown. The support bar 22 is substantially C-shaped with inwardly disposed ends 70. The support bar 22 is suitably sized such that one of the ends 70 is received in the first floating pivot 60 on the sidewall 14, while the other of the ends 70 is received in the respective first floating pivot 60 on the sidewall 16.

Referring now to Fig. 3, the support bar 22 is shown in three different positions. Clearly the support bar 22 can be located to rest in the first depression 48 shown in ghost outline, herein referred to as a nesting position. In this position the support bar 22 rests along the rim 66 of the sidewall 18. The support bar can also be located in the first outer groove 50, herein referred to as a first stacking position and shown in ghost outline, or in the first inner groove 52, herein referred to as a second stacking position and shown in full outline. It will be understood that the support bar 22 rests in the corresponding first depression 48, first outer groove 50, and first inner groove 52 of the sidewall 16 when in the nesting, first stacking and second stacking positions, respectively.

The first floating pivot 60 on each sidewall 14, 16 is larger than each of the ends 70 of the support bar 22. Thus, the ends 70 of the support bar 22 can both slidably and rotatably move within each first floating pivot 60 as the

support bar 22 is moved between the three positions. While the above description is directed to the support bar 22, it will be understood that the support bar 24 has a similar structure and operation.

5 The use of the multi-level stacking container 10 will now be described with reference to a second similar container. To simplify the description, the numerals used previously in describing the container 10 will be used with reference to the second, similar container after raising the numerals by 100.

Referring to Fig. 4, the container 10 is shown in the nested position with the second container 110. To arrange the containers 10, 110 in this position the support bars 122, 124 are moved to the nesting position in the first depression 148, 154, respectively, along the rim 166 of the respective sidewalls 118, 120. Then the container 10 is placed in the second container 110 such that the lip 46 of the container 10, abuts the rim 134 of the second container 110.

Referring to Fig. 5, the container 10 is shown in the first stacked position with the second container 110. The containers 10, 110 are arranged in this position by first placing the support bar 122 in the first outer groove 150 of each sidewalls 114, 116. Similarly, the support bar 124 is placed in the second outer groove 156 of each sidewall 114, 116. The container 10 is then placed on the second container 110 such that the support bar 122 of the second container 110 is received in each first outer recess 35 of the sidewalls 14, 16 of the first container 10. Similarly, the support bar 124 of the second container 110 is received in each second outer recess 40 of the sidewalls 14, 16 of the first container 10. Clearly, the first container 10 rests on the support bars 122, 124 of the second container 110.

25 Referring to Fig. 6, the container 10 is shown in the second stacked position with the second container 110. The containers 10, 110 are arranged in this position by first placing the support bar 122 in the first inner groove 152 of each sidewall 114, 116. Similarly, the support bar 124 is placed in the second inner groove 158 of each sidewall 114, 116. The container 10 is then placed on the second container 110 such that the support bar 122 of the second container 110 is received in each first inner recess 38 of the sidewalls 14, 16 of the first container. Similarly, the support bar 124 of the second container 110 is received



in each second inner recess 42 of the sidewalls 14, 16 of the first container 10. Again, in this position the first container 10 rests on the support bars 122, 124 of the second container 110.

Referring to Figs. 4 to 6, it will be apparent that each of the stacking  
5 positions provides a different base 12 to base 112 spacing between the container 10 and the second container 110. This spacing is greatest when the containers 10, 110 are in the first stacked position, intermediate when the containers 10, 110 are in the second stacked position, and least when the containers 10, 110 are in the nested position. The nested position is generally used when the containers 10,  
10 110 are empty. The first or second stacking positions are generally chosen depending on the size or quantity of goods in the containers 10, 110.

While the embodiment discussed herein is directed to a particular implementation of the invention, it will be apparent that variations of this embodiment are within the scope of this invention. For example, the size and  
15 shape of any of the features described can vary while still performing the same functions. The sidewalls, for instance, can differ in length or all sidewalls can be equal in length. In the above described embodiment, the base and sidewalls of the container are injection moulded high density polyethylene and the support bars are stainless steel but other materials and forming processes can be used.  
20 Also, the sidewalls can include a handle or an aperture for handling the container.

We claim:

1. A multi-level stacking container having:
  - a base;
  - a pair of opposed sidewalls extending from the base; and
  - a pair of moveable support bars operatively coupled to and extending across the pair of opposed sidewalls, the pair of support bars being moveable between at least three positions such that the container is stackable in at least three positions with a second, like-container.
2. The container according to claim 1, wherein each one of the pair of opposed sidewalls includes a floating pivot.
3. The container according to claim 2, wherein each of the support bars is substantially C-shaped.
4. The container according to claim 3, wherein each of the support bars has inwardly disposed ends.
5. The container according to claim 4, wherein each of the inwardly disposed ends of the support bars are slidable and pivotable in a respective floating pivot.
6. The container according to claim 5, wherein each of the opposed sidewalls includes a rim and a substantially parallel lip.
7. The container according to claim 6, wherein the rim of each of the opposed sidewalls includes two pairs of laterally spaced grooves, each pair of grooves for receiving a respective one of the support bars.
8. The container according to claim 7, wherein each pair of the laterally spaced grooves includes a first groove that extends deeper into the pair of opposed sidewalls than a second groove.

9. The container according to claim 8, wherein each of the opposed sidewalls includes two pairs of laterally spaced recesses along a basal edge.

10. The container according to claim 6, wherein when the container is nested in a second like container, the lip of the container abuts the rim of the second like container.

11. A multi-level stacking container having:  
a substantially rectangular base;  
a first pair and a second pair of opposed sidewalls extending from and integral with the base; and  
a pair of moveable support bars operatively coupled to and extending across the first pair of opposed sidewalls, the pair of support bars being pivotable between at least three positions such that the container is stackable in at least three positions with a second, like-container.

12. The container according to claim 11, wherein each one of the first pair of opposed sidewalls includes a floating pivot.

13. The container according to claim 12, wherein each of the support bars is substantially C-shaped.

14. The container according to claim 13, wherein each of the support bars has inwardly disposed ends.

15. The container according to claim 14, wherein each of the inwardly disposed ends of the support bars are slidable and pivotable in a respective floating pivot.

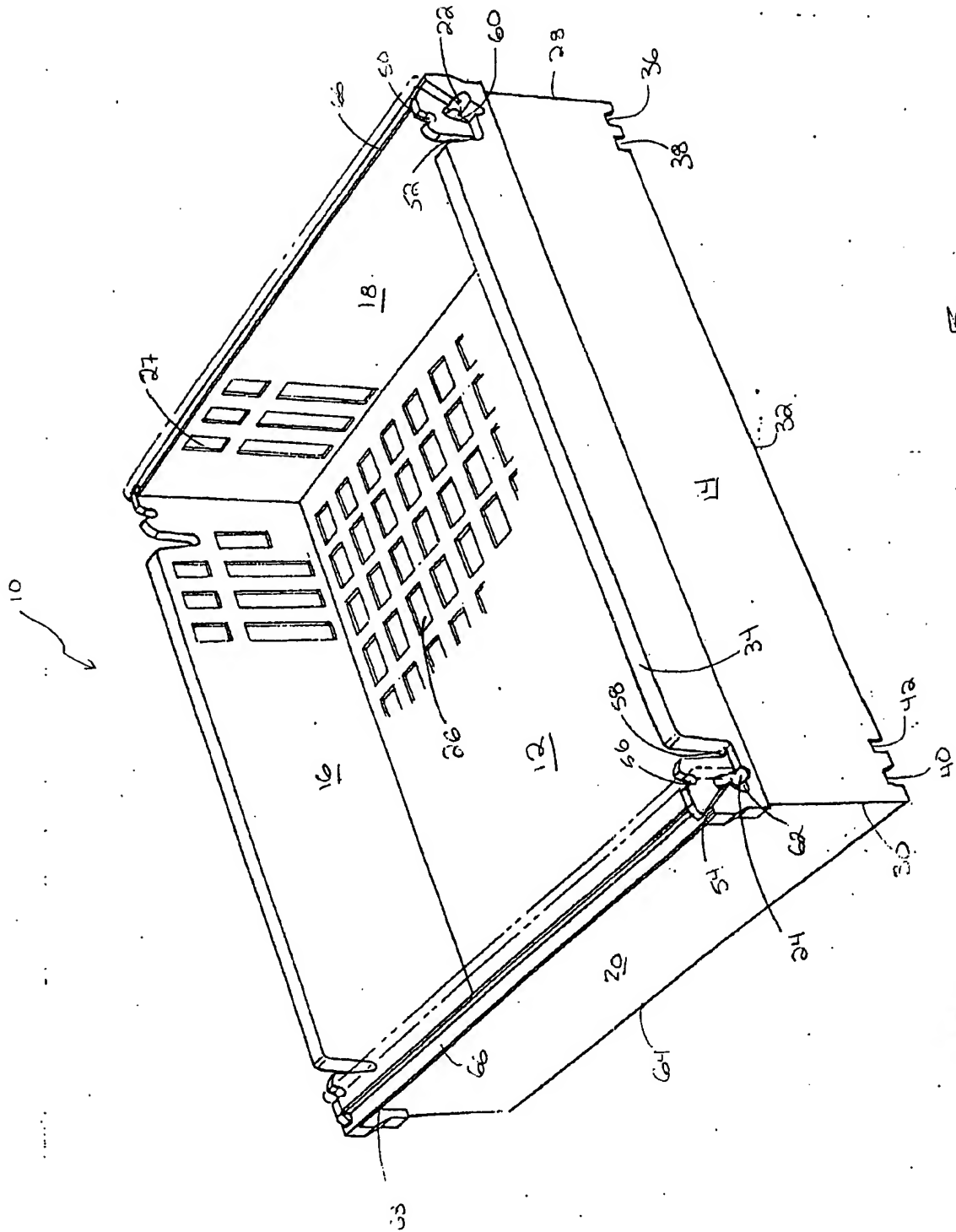
16. The container according to claim 15, wherein each of the first pair of opposed sidewalls includes a rim and a substantially parallel lip.

17. The container according to claim 16, wherein the rim of each of the first pair of opposed sidewalls includes two pairs of laterally spaced grooves, each pair of grooves for receiving a respective one of the support bars.

18. The container according to claim 17, wherein each pair of the laterally spaced grooves includes a first groove that extends deeper into the first pair of opposed sidewalls than a second groove.

19. The container according to claim 18, wherein each of the first pair of opposed sidewalls includes two pairs of laterally spaced recesses along a basal edge.

20. The container according to claim 16, wherein when the container is nested in a second like container, the lip of the container abuts the rim of the second like container.



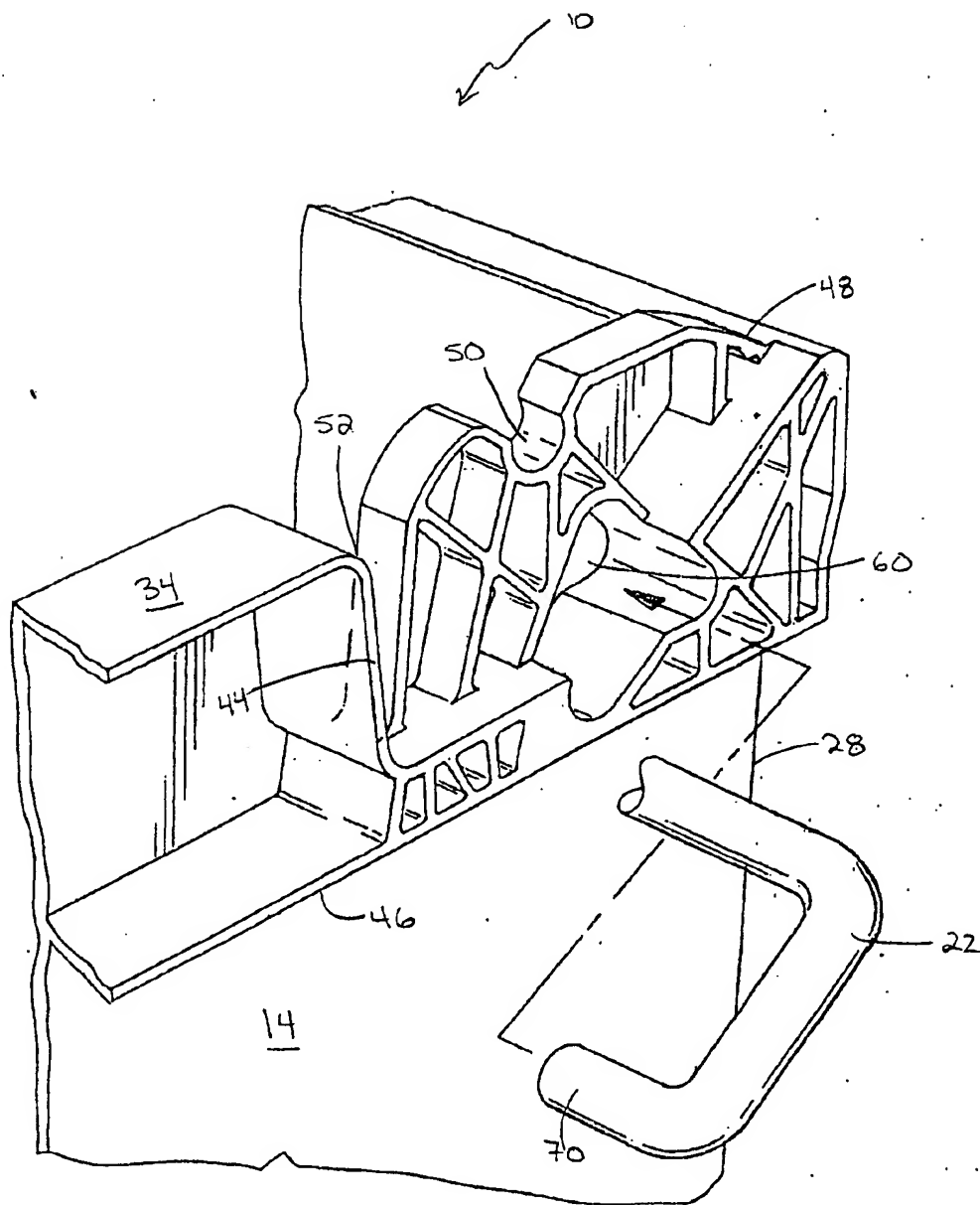


FIG. 2.

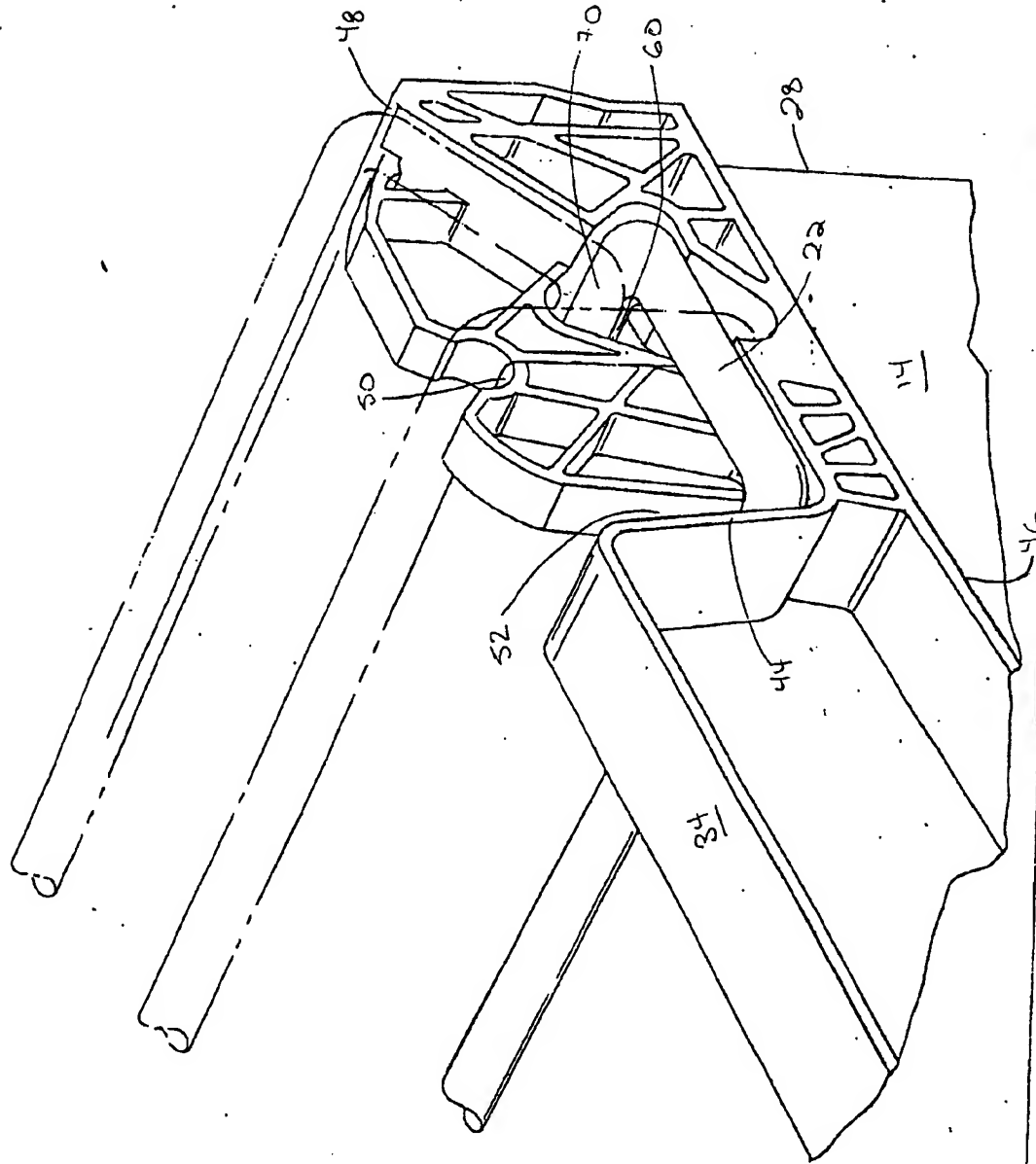


FIG. 3.

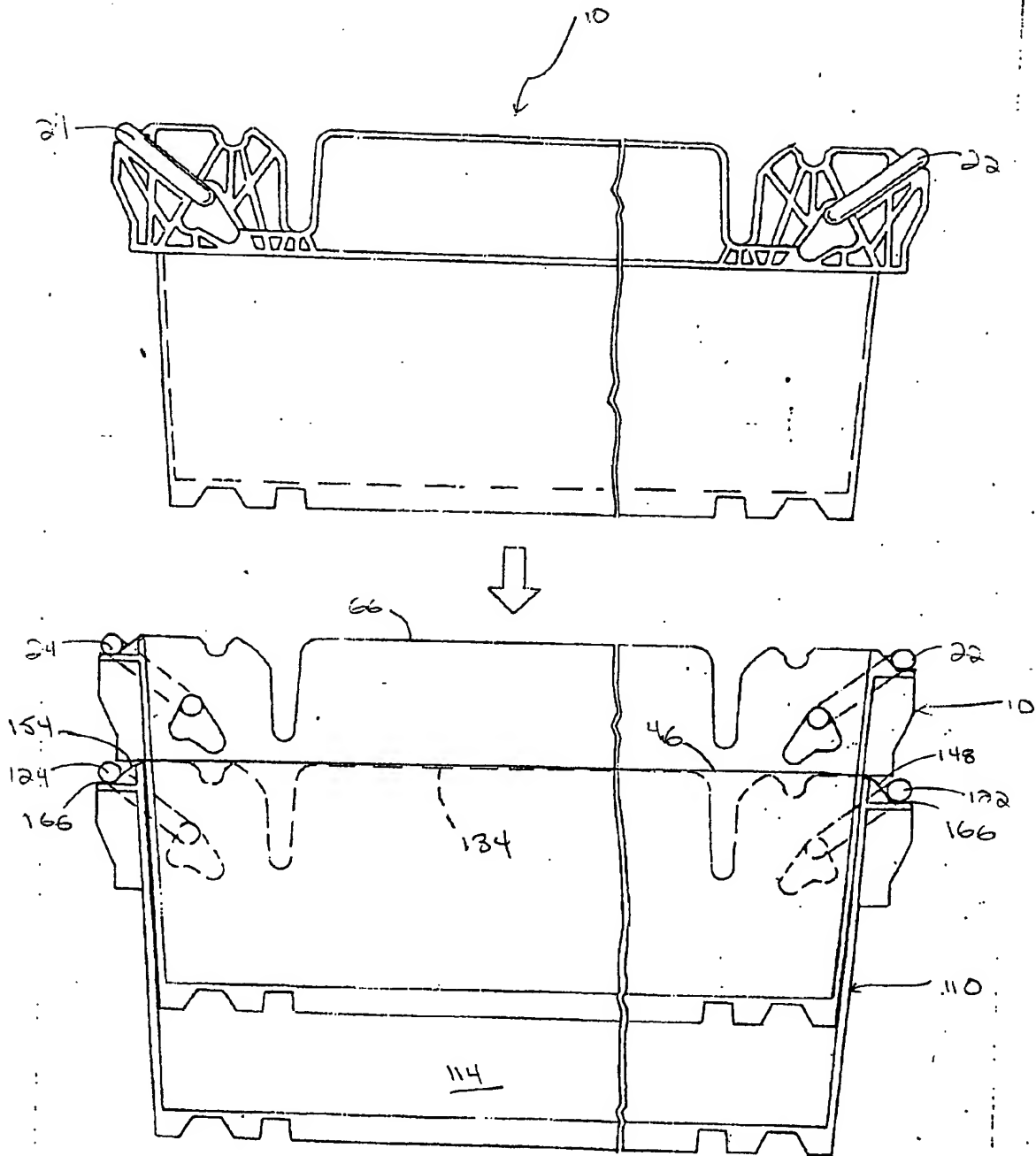


FIG. 4



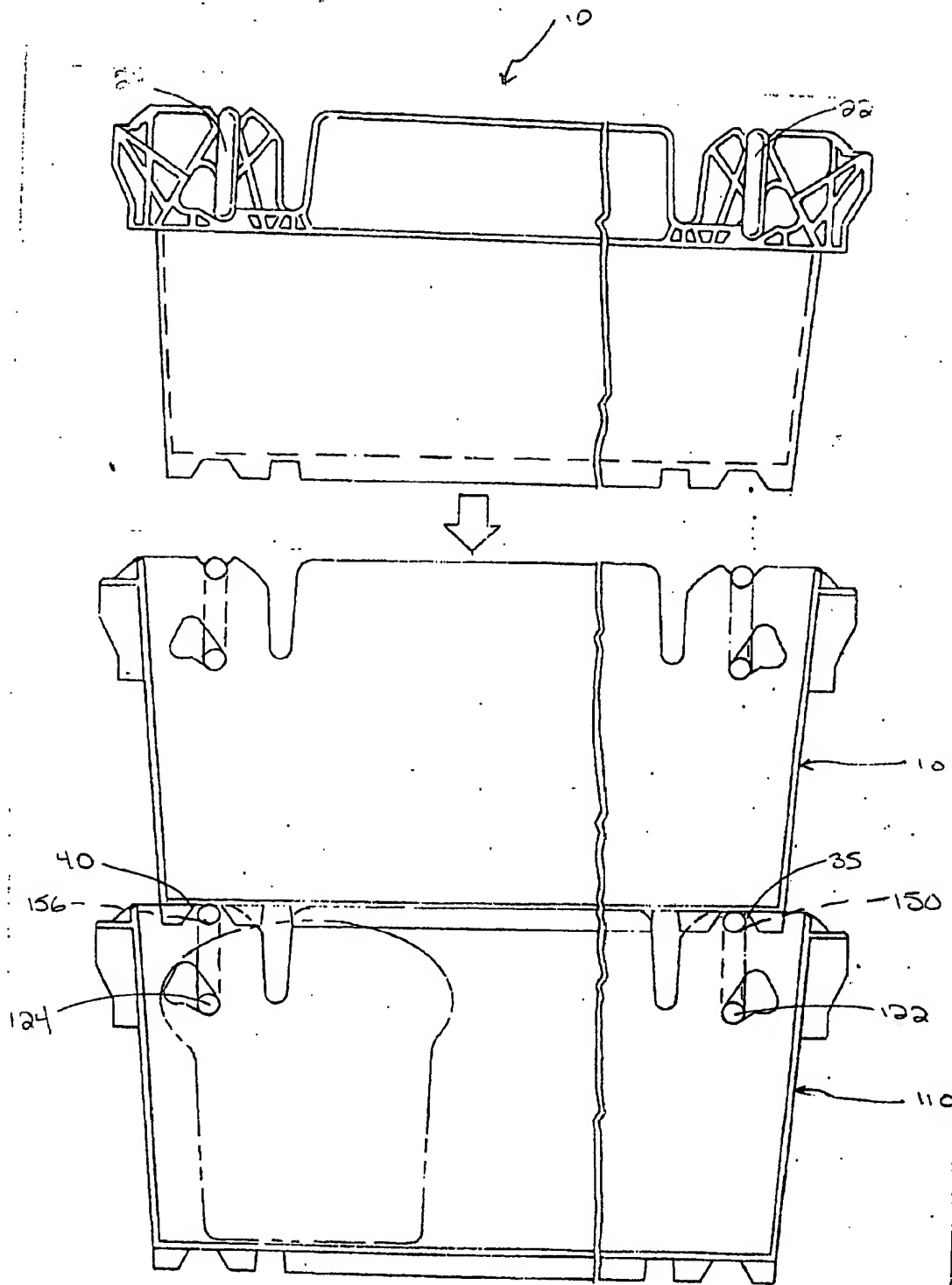


FIG. 5.

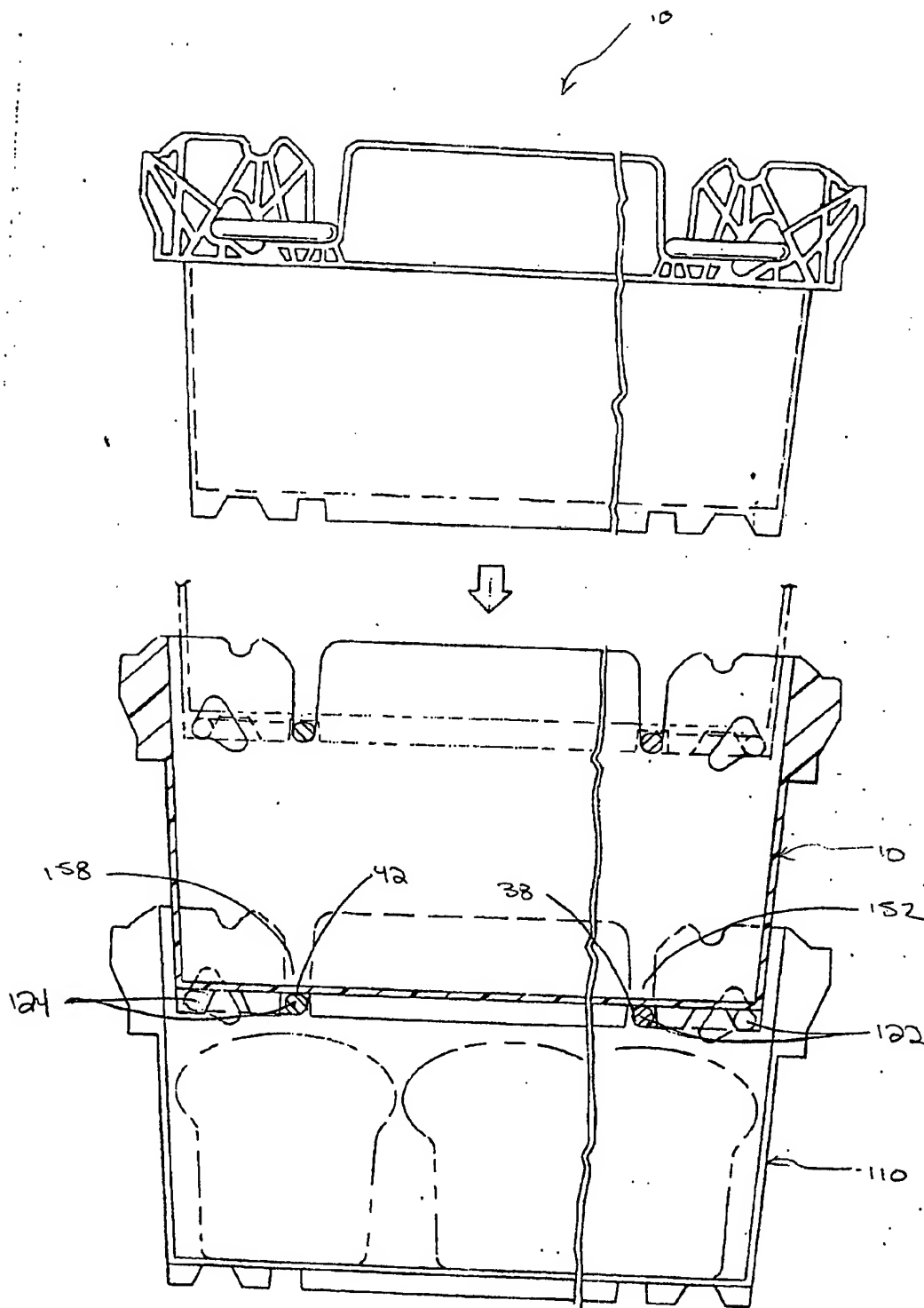


FIG. 6